

REMARKS

This is in response to the Office Action mailed on August 14, 2003, in which all pending claims 1-16, 19 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Voorman et al. (USP 5,559,646).

In rejecting independent claim 1, the Examiner noted that AAPA does not teach first and second coupling circuits that include active elements. The Examiner supplied this deficiency in AAPA by turning to Voorman et al., stating that this patent "teaches a differential amplifier comprising first and second coupling circuits including capacitors (C1, C2) and active elements (F1, F2) coupled in series between respective input signal node and the input transistor of the other amplifier circuit.

In order to reject a claim under 35 U.S.C. § 103 as being obvious over a combination of references, all the claim limitations must be taught or suggested by the combination. See M.P.E.P. 2143.03, citing In re Royka, 180 U.S.P.Q. 580 (C.C.P.A. 1974). Claim 1, as amended, recites a first coupling circuit including a capacitor and an active element coupled in series between the first input signal node and a base of the input transistor of the second amplifier circuit. Voorman et al. do not teach or suggest this configuration, since the capacitors (C1, C2) and the feedback circuits (F1, F2) are connected in series between respective terminals (7, 67) and the source (or collector) of a transistor (T1, T2). Because the combination of AAPA and Voorman et al. fails to teach or suggest all of the limitations of amended claim 1, the rejection of claim 1 under 35 U.S.C. § 103(a) should be withdrawn.

Claims 2-5 depend from amended independent claim 1, and are allowable therewith. In addition, it is respectfully submitted that the combinations of features recited in claims 2-5 are patentable on their own merits, although this does not need to be specifically addressed herein since any claim depending from a patentable independent claim is also patentable. See M.P.E.P. 2143.03, citing In re Fine, 5 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1988).

Independent claim 6 was rejected on the same basis as claim 1. With this Amendment, claim 6 has been amended in a manner similar to claim 1, indicating that the capacitor

and active element of each coupling circuit are coupled in series between a respective input signal node and a base of a respective input transistor. For the same reasons discussed above with respect to claim 1, the rejection of amended independent claim 6 under 35 U.S.C. § 103(a) should be withdrawn.

Claims 7-10 depend from amended independent claim 1, and are allowable therewith. In addition, it is respectfully submitted that the combinations of features recited in claims 7-10 are patentable on their own merits, although this does not need to be specifically addressed herein since any claim depending from a patentable independent claim is also patentable. See M.P.E.P. 2143.03, citing In re Fine, 5 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1988).

Independent claim 11 was rejected on the same basis as claims 1 and 6. With this Amendment, claim 11 has been amended in a manner similar to claims 1 and 6, indicating that the coupling transistor of each coupling circuit has an emitter that is ac coupled to a base of a respective input transistor. For the same reasons discussed above with respect to claim 1, the rejection of amended independent claim 6 under 35 U.S.C. § 103(a) should be withdrawn.

Claim 12 depends from amended independent claim 11, and is allowable therewith. In addition, it is respectfully submitted that the combination of features recited in claim 12 is patentable on its own merits, although this does not need to be specifically addressed herein since any claim depending from a patentable independent claim is also patentable. See M.P.E.P. 2143.03, citing In re Fine, 5 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1988).

Independent claim 13 was rejected on essentially the same basis as claims 1, 6 and 11, except that the Examiner found explicitly recited connections of circuit elements to be obvious because "it is merely routine engineering to change the interconnections of an amplifier circuit and would have been obvious to one of ordinary skill in the art in order to enhance the circuit." The Applicant disagrees with this characterization, particularly with respect to the recited connection between the first and second capacitors and the first, second, fifth and sixth transistors. Connections to a control element of a transistor such as a base and a controlled, current-conducting element of a transistor such as an emitter result in very different circuit operations, as is well known in the art

of analog circuit design, and is much more than routine engineering. Claim 13 recites a fifth transistor having a based connected to the second input signal node and a collector connected to a first fixed potential, a sixth transistor having a base connected to the first input signal node and a collector connected to the first fixed potential, a first capacitor connected between the emitter of the fifth transistor and the base of the first transistor, and a second capacitor connected between the emitter of the sixth transistor and the base of the second transistor. These connections are shown in coupling circuits 16 and 18 of FIG. 1.

The AAPA combined with the teachings of Voorman et al. does not disclose, teach or suggest connecting these components in the manner recited in claim 13. The AAPA does not include transistors connected between coupling capacitors (C1, C2 of FIG. 3) and the input signal nodes (VMR1, VMR 2 of FIG. 3). Voorman et al. discloses feedback circuits (F1, F2 of FIG. 6), which include transistors, but the transistors do not have a base connected to the input signal nodes (4/7 and 64/67 of FIG. 6), and the capacitors are not connected between the emitters of those transistors and the bases of first and second transistors (T1, T2 of FIG. 6). Because the connection of circuit elements recited in claim 13 are not taught or suggested by the combination of AAPA and Voorman et al., the rejection of claim 13 under 35 U.S.C. § 103(a) should be withdrawn.

Independent claim 14 was rejected on the same basis as claims 1, 6 and 11. With this Amendment, claim 14 has been amended in a manner similar to claim 1, indicating that a capacitor and an active element are coupled in series between a respective input signal node and a base of a respective input transistor. For the same reasons discussed above with respect to claim 1, the rejection of amended independent claim 6 under 35 U.S.C. § 103(a) should be withdrawn.

Claims 15, 16, 19 and 20 depend from amended independent claim 14, and are allowable therewith. In addition, it is respectfully submitted that the combinations of features recited in claims 15, 16, 19 and 20 are patentable on their own merits, although this does not need to be specifically addressed herein since any claim depending from a patentable independent claim is also patentable. See M.P.E.P. 2143.03, citing In re Fine, 5 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1988).

CONCLUSION

In view of the foregoing, all pending claims 1-16, 19 and 20 are in condition for allowance. A notice to that effect is respectfully requested.


Entry of this Amendment after final rejection is appropriate because it places all of the pending claims in condition for allowance. In addition, the amendments made to the independent claims do not change the scope of those claims in such a way that would require a new search, since the circuit connections recited in the amended claims were already set forth in either dependent claims or in independent claim 13, which have already been searched and considered by the Examiner.

The Examiner is cordially invited to contact the undersigned at the telephone number listed below if such a call would in any way facilitate the allowance of this application.

Respectfully submitted,

KINNEY & LANGE, P.A.

Date: 9/22/03

By: 

Alan M. Koenck, Reg. No. 43,724
THE KINNEY & LANGE BUILDING
312 South Third Street
Minneapolis, MN 55415-1002
Telephone: (612) 339-1863
Fax: (612) 339-6580

AMK